



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMM
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION
09/996,148	11/28/2001	David R. Greenberg	FIS920010262US1	3056
32074	7590	12/18/2003	EXAMINER	
INTERNATIONAL BUSINESS MACHINES CORPORATION DEPT. 18G BLDG. 300-482 2070 ROUTE 52 HOPEWELL JUNCTION, NY 12533			DEBERADINIS, ROBERT L	
			ART UNIT	PAPER NUMBER
			2836	

DATE MAILED: 12/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/996,148

Applicant(s)

GREENBERG ET AL.

Examiner

Robert DeBeradinis

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-14 is/are rejected.
- 7) ☒ Claim(s) 7 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11282001. 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by
FARRINGTON 6,642,467.

Regarding claim 1.

FARRINGTON teaches at least one contact electrode (figure 18, contact 31); and a deflecting beam (34), said deflecting beam contacting said at least one contact electrode (31) by way of a compressible deformable means affixed to at least one end of said deflecting beam or to at least one of said contact electrodes (see figure 18).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2836

Claims 1-6, 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over HUANG 6,384,353 in view of FARRINGTON 6,642,467 and MIKHEEVA SU 955255.

Regarding claims 1, 9, 11, 12, 13, 14.

HUANG discloses a micro-electromechanical switch comprising:

At least one contact electrode (135); and

A deflecting beam, said deflecting beam contacting said at least one contact electrode (122).

HUANG does not teach said deflecting beam contacting said at least one contact electrode by way of a compressible deformable means affixed to at least one end of said deflecting beam or to at least one of said contact electrodes.

FARRINGTON teaches at least one contact electrode (figure 18, contact 31); and a deflecting beam (34), said deflecting beam contacting said at least one contact electrode (31) by way of a compressible deformable means affixed to at least one end of said deflecting beam or to at least one of said contact electrodes (see figure 18) and MIKHEEVA teaches applying a greater force to free switch contacts that stick.

It would have been obvious to one having ordinary skill in the art at the time of this invention to modify HUANG to include a compressible deformable means affixed to at least one end of said deflecting beam or to at least one of said contact electrodes.

The motivation would be to provide the additional force to separate the contacts to prevent the contacts from sticking.

Regarding claim 2.

FARRINTON teaches wherein said compressible deformable means is selected from the group consisting of a layer and discrete spring-like elements protruding from said at least one contact electrode (see figure 4b, column 5, lines 33-60).

Regarding claim 3.

HUANG in view of FARRINGDON and MIKHEEVA disclose the micro-electromechanical switch as recited in claim 1.

HUANG teaches a control electrode (125) coplanar to said at least one contact electrode (122).

Regarding claims 4, 5, 10.

HUANG in view of FARRINGDON and MIKHEEVA disclose the micro-electromechanical switch as recited in claim 3 wherein the deflection of said deflecting beam is governed by applying a voltage between said deflecting beam and said control electrode.

Regarding claims 6, 8.

HUANG in view of FARRINGDON and MIKHEEVA disclose the micro-electromechanical switch as recited in claim 1.

FARRINGTON teaches resilient biasing means may be of any suitable design and material or materials which will serve to separate the contact portions after the removal of force (column 7, lines 41-48).

The above references do not teach a non-linear increase to a separating force able to overcome stiction.

The Examiner takes official that a force required to compress a spring or compressible materials such as rubber exhibit a non-linear characteristic.

It would have been obvious to one having ordinary skill in the art at the time of this invention to modify HUANG to include a compressible material such as rubber, which is know to exhibit a non-linear compressible force characteristic, to provide a biasing means for the contacts. The motivation would be to apply an additional force to separate the contacts to overcome the stiction force of the contacts (MIKHEEVA teaches applying added force to free contacts).

Allowable Subject Matter

Claims 7, 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication should be directed to Robert L. DeBeradinis whose number is (703) 306- 5857. The Examiner can normally be reached Monday-Friday from 8:30 am to 5:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Brian Sircus, can be reached on (703) 308-3119. The Fax phone number for this Group is (703) 308-7722.

RLD

DECEMBER 2, 2003

